Survey of Sediment Quality in Puget Sound, 1997-1999—Toxicity

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Extended Abstract

Surficial sediments from 300 locations throughout Puget Sound were collected during June of 1997, 1998, and 1999, and tested to determine toxic conditions as part of a three-year cooperative agreement between the Puget Sound Ambient Monitoring Program's Sediment Monitoring Component (conducted by the Washington State Department of Ecology) and the National Oceanic and Atmospheric Administration's National Status and Trends Program. Spatial patterns and gradients of toxicity, along with estimates of the spatial extent (km^2) of toxicity throughout the study area, are displayed for the results of four toxicity tests (i.e., 10-day amphipod survival (*Ampelisca abdita*) (solid phase), sea urchin fertilization (*Strongylocentrotus purpuratus*) (pore water), microbial bioluminescence (Microtox™) (organic solvent extract), and cytochrome P450 HRGS (organic solvent extract). Highest levels and degree of overlap in toxicity measures occurred in the industrialized harbors of Everett, Elliott Bay, Commencement Bay, and Port of Olympia, while significant, single test responses occurred in other urban and rural locations, including Drayton Harbor, Bellingham Bay, Padilla Bay, Fidalgo Island, Port Susan, Port Washington Narrows, central basin, Eagle Harbor, Sinclair Inlet, Port Gamble, Port Ludlow, East Passage, Gig Harbor, Dabob Bay, Eld and Totten Inlets, and Shelton Harbor. Toxicity tests indicated toxic conditions at 70 stations representing 7.1% of the total study area (2363.2 km^2), while non-toxic conditions were found at 230 stations representing 92.9% of the total study area. Detailed results from each year of the study are published in Long et al., 1999, 2000, and in prep. A report summarizing all three years of data, with multivariate analysis to further determine relationships between the triad parameters, will also be prepared.

References

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